

Mod5 Series 0.50mm Pitch Flip-Top™ BGA Socket

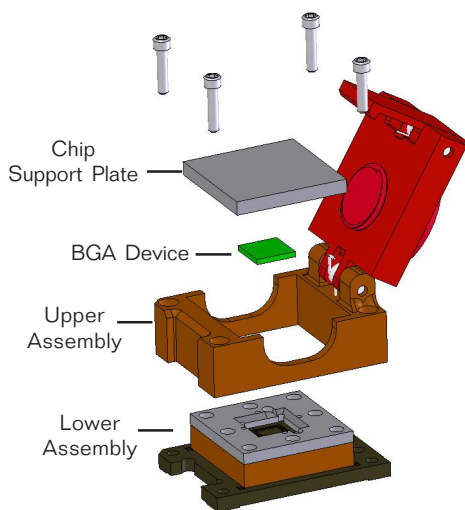


www.advanced.com

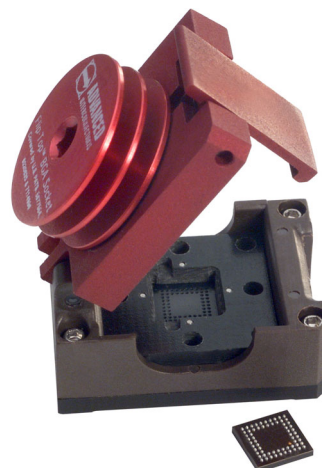
The new Mod5 Series Flip-Top™ BGA Socket is designed for test, debug, and validation of 0.50mm pitch BGA devices. The compact, surface mount design requires no tooling or mounting holes in the target PC board, maximizing real estate while reducing board costs.

The new Mod5 Series provides a compact, surface mount test solution for micro-BGA chipsets used in applications such as handheld, mobile, and wireless product development. Precision machined spring probes with industry proven solder balls ensure high reliability performance.

How It Works



- ▶ Solder **lower assembly** to PC board
- ▶ Attach **upper assembly** using four supplied screws.
- ▶ Insert **BGA device** by hand or with the aid of a vacuum pen (recommended).
- ▶ Place device-specific **chip support plate** (supplied) over device, close lid, and screw down heat sink actuator for device engagement.



TYPICAL APPLICATIONS

- Test, validation, and debug of 0.50mm pitch BGA devices
- System and wafer test
- Package and chip qualification
- Failure analysis
- Production prototype

Features

- Model shown accommodates BGA packages up to 12mm sq. (22 x 22 rows) – larger sizes available upon request
- Precision machined spring probes offer high bandwidth with very low insertion loss
- Compact size (small keepout zone) enables use on existing board layouts
- Flip-Top BGA Socket's easy actuation with simple cover and turn-screw heat sink enables quick insertion and extraction
- SMT design eliminates the cost of hardware and mounting holes and their associated interference with traces on the PCB
- Modular design of lower assembly enables simple reflow process, similar to BGA device
- Metallic probes offer proven reliability over elastomeric sockets and long-life (spring probe contact system life is 200,000 cycles minimum)
- Additional mounting options and custom designs available



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INTERCONNECTIONS®

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E-mail: info@advanced.com | Web: www.advanced.com

Performance

Durability

Actuation cycles: 500 minimum

Current Carrying Capacity

2.8 Amps Max.

Probe Contact Force

18 g (per position)

Probe Contact Resistance

80 mOhms

Return Loss*

Differential	Single-Ended
-10db @ 2.6 GHz	-10db @ 8.0 GHz
-15db @ 1.3 GHz	-15db @ 3.5 GHz

Insertion Loss*

Differential	Single-Ended
-0.6db @ 2.6 GHz	-2.1db @ 8.0 GHz
-0.2db @ 1.3 GHz	-0.9db @ 3.5 GHz

*Complete SI Simulation Report
available online

Specifications

For Device Packages up to 12mm Square

Body Size

0.79/(20mm) W x 1.06/(27mm) L

Height

0.68/(17.4mm)* approx. (*will vary based on
reflow profile, paste volume, etc.)

Guide Box

High Temp. Glass Filled Thermoplastic (PPS)
Screws: 18-8 Stainless Steel

Base Socket

FR-4 Glass Epoxy, U.L. Rated 94V-0

Lid, Latch, Heat Sink, and Support Plate

Anodized Aluminum

Spring Probe Terminals

Crown-point Plunger: Tool Steel, Gold Plated
Spring: Stainless Steel, Gold Plated
Terminal: Brass (C36000), Gold Plated

Solder Ball (Board Interface)

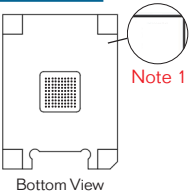
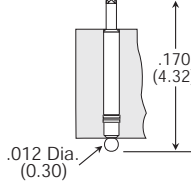
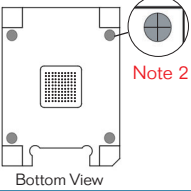
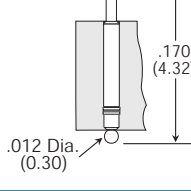
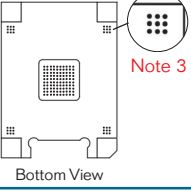
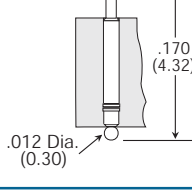
RoHS Compliant (Lead-free):
96.5Sn/3.0Ag/0.5Cu (SAC305)

Not RoHS (Tin/Lead):
63Sn/37Pb

Continuous Operating Temperature Range

-40°C to 140°C (-40°F to 284°F)

Table of Models

Mounting Options	Mounting/Terminal Type Designation
SMT Standard  <p>Bottom View</p>	 <p>Terminal Type -860 Sn/Ag/Cu Solder Ball</p> <p>Terminal Type -861 Sn/Pb Solder Ball</p> <p>■ Note 1: See Application Spec. for recommended adhesive (epoxy) instructions*</p>
SMT/Screw Mount  <p>Bottom View</p>	 <p>Terminal Type -864 Sn/Ag/Cu Solder Ball</p> <p>Terminal Type -865 Sn/Pb Solder Ball</p> <p>■ Note 2: Screws provided for additional strain relief when needed; reflow still required*</p>
SMT Plus  <p>Bottom View</p>	 <p>Terminal Type -862 Sn/Ag/Cu Solder Ball</p> <p>Terminal Type -863 Sn/Pb Solder Ball</p> <p>■ Note 3: Additional solder balls provided for strain relief in low pin count SMT applications*</p>

*See product Application Specification for complete mounting details.

How To Order

Footprint Dash # If Applicable*	16 FR M 064 - 860 GG H1	Turn-Screw Heat Sink H1 - 1 Fin (standard) H3 - 3 Fins
Model Type FR - Flip-Top™ BGA Socket		Terminal Plating (Probe Termination) GG - Gold
Pitch M = .0197/(0.50mm)		Terminal Type (Includes Mounting Option) See Lead-free (RoHS) and Tin/Lead options with various mounting styles
Number of Positions *Footprints available online		

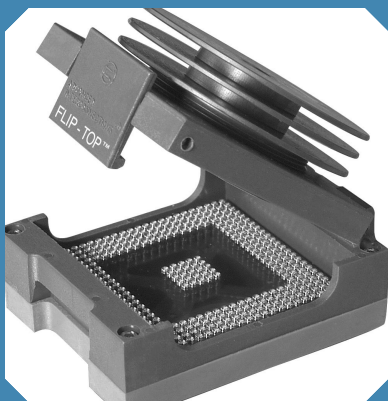
- 4-point crown tip spring probes accurately align device solder balls, leaving only minimal witness marks to preserve the solder ball integrity
- Visit www.bgasockets.com to select a footprint or submit your device mechanical specifications to info@advanced.com
- Device mechanical specifications are required prior to ordering to ensure accuracy of device-specific chip support plate
- Sockets are packaged in foam-lined cartons



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Flip-Top™ BGA Sockets



Features:

- Designed to save space on new and existing PC boards in test, development, programming and production applications.
- No external hold-downs or soldering of BGA device required.
- AIC exclusive solder ball terminals offer superior processing.
- Uses same footprint as BGA device.
- Available with integral, finned heat sink or coin screw clamp assembly.

Specifications:

Terminals:

Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:

Beryllium Copper
(C17200) ASTM-B-194

Plating:

G - Gold over Nickel

Terminal Support:

Polyimide Film

Spring Material:

Stainless Steel

Lid, Latch, Heat Sink/Coin Screw and Support Plate Material:

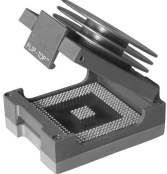
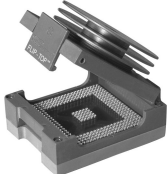
Aluminum

Solder Ball:

Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

Flip-Top™ BGA Sockets 1.27mm and 1.00mm Pitch

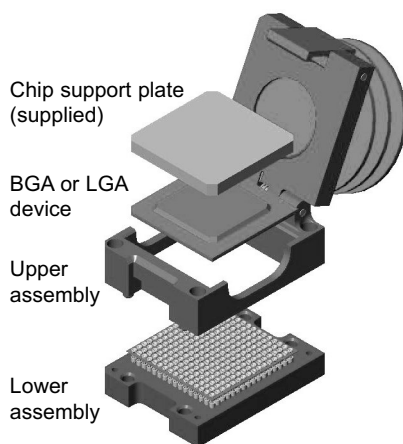
Table of Models

	Description: Socket (FRG, 1.27mm pitch) Guide Box and Base Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	Socket Size: 3.00mm wider and 10.00mm longer than BGA device (for packages larger than 15.00mm square).*
	Description: Socket (FRH, 1.00mm pitch) Guide Box Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F) Base Mat'l: FR-4 Glass Filled Epoxy Index: -40°C to 140°C (-40°F to 284°F)	Socket Size: 3.00mm wider and 10.00mm longer than BGA device (for packages larger than 15.00mm square).*

FRG replaces FTG.

* For device packages smaller than 15.00mm square, the socket size is X = .709/(18.00) and Y = .984/(25.00).

How It Works



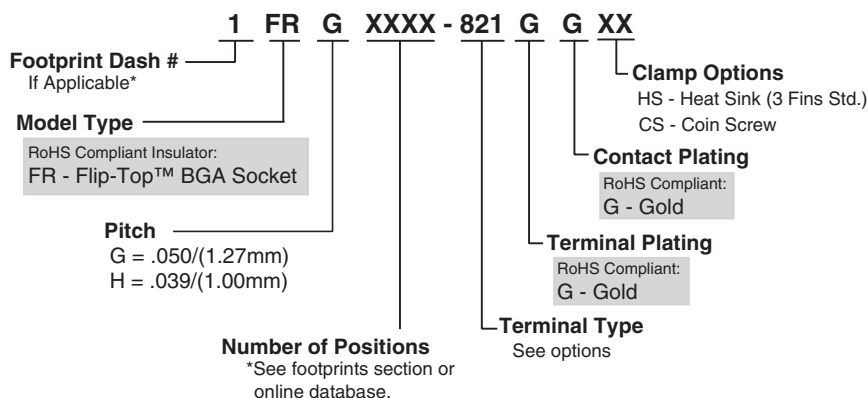
See page 15 for Generic Reflow Profiles.

SMT models are shipped un-assembled to ease solderability. Thru-hole models are shipped fully assembled.

1. Lower assembly is soldered to PC board with no external hold-down mechanism. Thru-hole models may be soldered to PC board or plugged into a mating socket.
2. Upper assembly inserts easily to lower assembly by aligning guide posts and installing four (supplied) screws.
3. Finned heat sink or coin screw is screwed down to flush with bottom of lid.
4. Lid opens easily by pressing latch.
5. BGA device is inserted by aligning A1 position with chamfered corner of Flip-Top™ socket. Place support plate on top of device, close lid, engage heat sink or coin screw, and socket is ready for use.

Detailed Installation and General Usage Instructions are provided with product.

How To Order



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Catalog 16A

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inch/(mm)

Flip-Top™ BGA Sockets

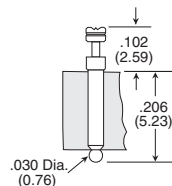
1.27mm and 1.00mm Pitch

Terminals (for test, development and production applications)

SMT (Surface Mount)

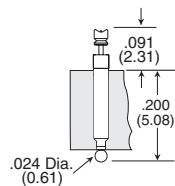
Tin/Lead: Type -690
Lead-free: Type -821

1.27mm pitch



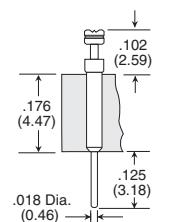
Tin/Lead: Type -752
Lead-free: Type -837

1.00mm pitch

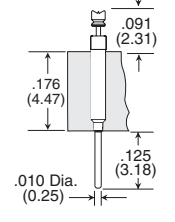


Thru-Hole

Type -708



Type -754

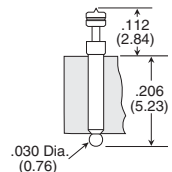


Terminals (for LGA or de-balled BGA device applications)

SMT (Surface Mount)

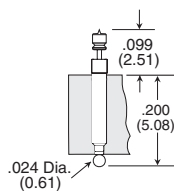
Tin/Lead: Type -713
Lead-free: Type -822

1.27mm pitch



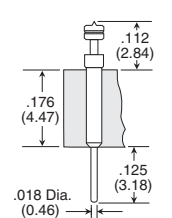
Tin/Lead: Type -762
Lead-free: Type -838

1.00mm pitch

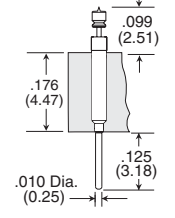


Thru-Hole

Type -712



Type -763

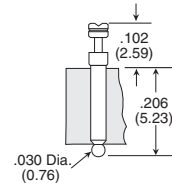


Terminals (for BGA device test applications)

SMT (Surface Mount)

Tin/Lead: Type -659
Lead-free: Type -820

1.27mm pitch



Tin/Lead: Type -TBD
Lead-free: Type -TBD

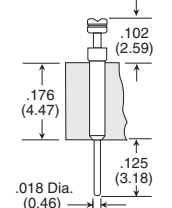
1.00mm pitch

Consult
Factory

Thru-Hole

Type -657

Available with .016/(0.41mm) Diam. tail; Type -709



Type -TBD

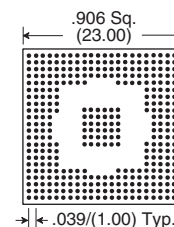
Consult
Factory

Flip-Top™ BGA Sockets



Footprints:

360 Pins
Footprint Number 360-2



22 x 22 rows

- Full grid molded insulators populated to exact device pattern.
- Over 1000 footprints available - see page 99, search online or submit your device specs.
- Use our Build-A-Part feature or search in our online BGA Socket Finder™ at www.bgasockets.com.

Available Online:

- RoHS Qualification Test Report
- Technical articles
- Test data
- Signal Integrity Performance
- CAD drawings
- BGA Footprints



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